

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TYLER DIVISION**

REALTIME DATA LLC d/b/a IXO,

Plaintiff,

v.

ECHOSTAR CORPORATION and
HUGHES NETWORK SYSTEMS, LLC,

Defendants.

Case No. _____

JURY TRIAL DEMANDED

COMPLAINT FOR PATENT INFRINGEMENT

This is an action for patent infringement arising under the Patent Laws of the United States of America, 35 U.S.C. § 1 *et seq.* in which Plaintiff Realtime Data LLC d/b/a IXO (“Plaintiff,” “Realtime,” or “IXO”) makes the following allegations against Defendants EchoStar Corporation and Hughes Network Systems, LLC (collectively, “Defendants”):

PARTIES

1. Realtime is a New York limited liability company. Realtime has places of business at 1828 E.S.E. Loop 323, Tyler, Texas 75701 and 66 Palmer Avenue, Suite 27, Bronxville, NY 10708. Since the 1990s, Realtime has researched and developed specific solutions for data compression, including, for example, those that increase the speeds at which data can be stored and accessed. As recognition of its innovations rooted in this technological field, Realtime holds over 47 United States patents and has numerous pending patent applications. Realtime has licensed patents in this portfolio to many of the world’s leading technology companies. The patents-in-suit relate to Realtime’s development of advanced systems and methods for fast and efficient data compression using numerous innovative compression techniques based on, for example, particular attributes of the data.

2. On information and belief, EchoStar Corporation (“EchoStar”) is a Nevada corporation with its principal place of business at 100 Inverness Terrace East, Englewood, CO 80112. On information and belief, EchoStar can be served through its registered agent, Corporation Service Company, 1560 Broadway, Suite 2090, Denver, CO 80202. On information and belief, EchoStar directly or indirectly owns co-defendant Hughes Network Systems, LLC (“Hughes”).¹

3. On information and belief, Hughes Network Systems, LLC (“Hughes”) is a Delaware limited liability company having a principal place of business at 11717 Exploration Lane, Germantown, MD 20876. On information and belief, Hughes can be served through its registered agent, Corporation Service Company d/b/a CSC-Lawyers Incorporating Service, 211 E. 7th Street Suite 620, Austin, TX 78701. On information and belief, Hughes has been a direct or indirect subsidiary of EchoStar since at least 2011.

4. On information and belief, EchoStar, as the direct or indirect owner of Hughes, promotes and offers for sales Hughes-branded products, including HN/HX broadband satellite routers. *See, e.g.,* <http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en>. As further explained below, HN/HX broadband satellite routers infringe the asserted patents. Accordingly, each of the Defendants is properly joined in this action pursuant to 35 U.S.C. § 299.

JURISDICTION AND VENUE

5. This action arises under the patent laws of the United States, Title 35 of the United States Code. This Court has original subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

6. This Court has personal jurisdiction over EchoStar in this action because EchoStar has committed acts within the Eastern District of Texas giving rise to this action

¹ *See* <http://www.wsj.com/articles/SB10001424052748703584804576143833056404482>

and has established minimum contacts with this forum such that the exercise of jurisdiction over EchoStar would not offend traditional notions of fair play and substantial justice. EchoStar directly and through subsidiaries (including Hughes) or intermediaries (including distributors, retailers, and others), has committed and continues to commit acts of infringement in this District by, among other things, offering to sell and selling products and/or services that infringe the asserted patents.

7. This Court has personal jurisdiction over Hughes in this action because Defendants have committed acts within the Eastern District of Texas giving rise to this action and has established minimum contacts with this forum such that the exercise of jurisdiction over Hughes would not offend traditional notions of fair play and substantial justice. Hughes, directly and through subsidiaries or intermediaries (including distributors, retailers, and others), has committed and continues to commit acts of infringement in this District by, among other things, offering to sell and selling products and/or services that infringe the asserted patents. Hughes is registered to do business in the State of Texas and has appointed Corporation Service Company d/b/a CSC-Lawyers Incorporating Service, 211 E. 7th Street Suite 620, Austin, TX 78701 as its agent for service of process.

8. Venue is proper in this district under 28 U.S.C. §§ 1391(b), 1391(c) and 1400(b). Upon information and belief, EchoStar and Hughes have transacted business in the Eastern District of Texas and have committed acts of direct and indirect infringement in the Eastern District of Texas. In addition, Echostar maintains an Uplink & Broadcast Center in Texas located at 710 Conrads Ln., New Braunfels, TX 78130. *See* <http://www.echostar.com/company/locations.aspx>. In addition, Hughes is registered to do business in Texas and maintains a sales office in Texas located at 320 Decker, Suite 100, Irving TX 75062. *See id.*

ASSERTED PATENTS

9. The four asserted patents are U.S. Patent Nos. 8,717,204 (“204 patent”); 9,054,728 (“728 patent”); 7,358,867 (“867 patent”); and 8,502,707 (“707 patent”)

(collectively, “Asserted Patents”).

10. The Asserted Patents have been cited as prior art during the prosecution of at least 400 patent applications of Realtime and other companies. Those other companies include well-known technology companies such as: Quantum, Fujitsu, IBM, Seagate, STMicroelectronics, Cisco, LSI, Skyfire Labs, Chicago Mercantile Exchange, Thomson Reuters, OSR Open Systems Resources, Exegy, RIM, Renesas, Red Hat, Xerox, and Microsoft.

COUNT I

INFRINGEMENT OF U.S. PATENT NO. 8,717,204

11. Plaintiff realleges and incorporates by reference paragraphs 1-10 above, as if fully set forth herein.

12. Plaintiff Realtime is the owner by assignment of United States Patent No. 8,717,204 entitled “Methods for encoding and decoding data.” The ‘204 patent was duly and legally issued by the United States Patent and Trademark Office on May 6, 2014. A true and correct copy of the ‘204 Patent is included as Exhibit A.

Accused Instrumentality Including HN/HX Systems

13. On information and belief, Defendants have offered for sale, sold and/or imported into the United States Hughes products that infringe the ‘204 patent, and continues to do so. By way of illustrative example, these infringing products include, without limitation, Defendants’ products and services, such as HN/HX Systems, and all versions and variations thereof since the issuance of the ‘204 patent (“Accused Instrumentality”).

14. On information and belief, Defendants have directly infringed and continue to infringe the ‘204 patent, for example, through their own use and testing of the accused products to practice compression methods claimed by the ‘204 patent, including a method for processing data, the data residing in data fields, comprising: recognizing any characteristic, attribute, or parameter of the data; selecting an encoder associated with

the recognized characteristic, attribute, or parameter of the data; compressing the data with the selected encoder utilizing at least one state machine to provide compressed data having a compression ratio of over 4:1; and point-to-point transmitting the compressed data to a client; wherein the compressing and the transmitting occur over a period of time which is less than a time to transmit the data in an uncompressed form. On information and belief, Defendants use the Accused Instrumentality in its ordinary and customary fashion for their own internal non-testing business purposes, while testing the Accused Instrumentality, and while providing technical support and repair services for the Accused Instrumentality to Defendants' customers, and use of the Accused Instrumentality in its ordinary and customary fashion results in infringement of the methods claimed by the '204 patent.

15. On information and belief, Defendants have had knowledge of the '204 patent since at least the filing of this Complaint or shortly thereafter, and on information and belief, Defendants knew of the '204 patent and knew of their infringement, including by way of this lawsuit.

16. Defendants' affirmative acts of making, using, selling, offering for sale, and/or importing the Accused Instrumentality have induced and continue to induce users of the Accused Instrumentality to use the Accused Instrumentality in its normal and customary way to infringe the '204 patent by practicing compression methods claimed by the '204 patent, including a method for processing data, the data residing in data fields, comprising: recognizing any characteristic, attribute, or parameter of the data; selecting an encoder associated with the recognized characteristic, attribute, or parameter of the data; compressing the data with the selected encoder utilizing at least one state machine to provide compressed data having a compression ratio of over 4:1; and point-to-point transmitting the compressed data to a client; wherein the compressing and the transmitting occur over a period of time which is less than a time to transmit the data in an uncompressed form. For example, Defendants explain to customers the benefits of

using the Accused Instrumentality, “A standard TCP/IP header is 40 bytes per packet, and most of that information is redundant for a given session. Header compression suppresses any redundant information, reducing the bandwidth required for the header. ... PEP packet payload compression uses the V.44 lossless compression algorithm. ... Stateful compression is able to take advantage of redundancy in all messages being sent instead of only redundancy within a message, thus providing significantly better compression ratios. Compression ratios of up to 12:1 are achieved.” See <http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en> at 9. Defendants specifically intended and were aware that the normal and customary use of the Accused Instrumentality would infringe the ‘204 patent. Defendants performed the acts that constitute induced infringement, and would induce actual infringement, with the knowledge of the ‘204 patent and with the knowledge, or willful blindness to the probability, that the induced acts would constitute infringement. On information and belief, Defendants engaged in such inducement to promote the sales of the Accused Instrumentality, *e.g.*, through Defendants’ user manuals, product support, marketing materials, and training materials to actively induce the users of the Accused Instrumentality to infringe the ‘204 patent. Accordingly, Defendants have induced and continue to induce users of the Accused Instrumentality to use the Accused Instrumentality in its ordinary and customary way to infringe the ‘204 patent, knowing that such use constitutes infringement of the ‘204 patent.

17. The Accused Instrumentality practices a method for processing data, the data residing in data fields. See, *e.g.*, <http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en> at 8-9 (“HN/HX Systems provide IP/TCP/UDP/RTP header compression and payload compression in both inbound and outbound directions. A standard TCP/IP header is 40 bytes per packet, and most of that information is redundant for a given session. ... PEP packet payload compression uses the V.44 lossless compression algorithm.”).

18. The Accused Instrumentality recognizes any characteristic, attribute, or parameter of the data, for example, whether the data is packet header data or packet payload data. See, e.g., <http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en> at 8-9 (“HN/HX Systems provide IP/TCP/UDP/RTP header compression and payload compression in both inbound and outbound directions. A standard TCP/IP header is 40 bytes per packet, and most of that information is redundant for a given session. Header compression suppresses any redundant information, reducing the bandwidth required for the header. This compression capability requires that a large number of the fields either do not change or change only in expected ways. Inbound header compression compresses TCP/IP headers from 40 bytes to 10–12 bytes, reducing typical bandwidth usage by 15–20%. The inbound compression algorithm is a Hughes-extended version of RFC 1144. Multiple types of IP headers can be compressed, including IP headers, UDP headers, TCP headers, RTP headers, and Hughes’ PBP headers. Outbound header compression compresses IP, UDP, and RTP headers using the header fields that do not change or change in predictable ways. The outbound compression algorithm is based on RFC 3095, Robust Header Compression, and the Hughes inbound header compression algorithm. IP/UDP/RTP headers for RTP packets (types G.729 and G.723.1) are compressed. With outbound header compression, the size of the IP/UDP/RTP headers becomes 5 bytes from 40 bytes. With an average RTP payload size of 20 bytes, the expected compression ratio for IP/UDP/RTP packets is $35/(40+20) = 58.3\%$. PEP packet payload compression uses the V.44 lossless compression algorithm. V.44 is an ITU standardized compression technology based on a Hughes-patented compression algorithm. The PEP stateful compression implementation takes advantage of the guaranteed, in-order delivery service provided by the PEP backbone protocol. Stateful compression is able to take advantage of redundancy in all messages being sent instead of only redundancy within a message, thus providing significantly better compression ratios. Compression ratios of up to 12:1 are

achieved. HN/HX Systems feature IP Payload Compression for UDP Packets utilizing the IP Payload Compression Protocol (IPComp) per RFC 3173 to compress UDP traffic (for example, DNS, BRP, SNMP, Multicast traffic) using a lossless, stateless compression algorithm. The bandwidth savings is a function of traffic type. Bandwidth usage for typical DNS request traffic will be reduced by 10%, DNS responses by 30%, and SNMP traffic by 50%.’).

19. The Accused Instrumentality selects an encoder associated with the recognized characteristic, attribute, or parameter of the data, for example, whether the data is packet header data or packet payload data. See, e.g., <http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en> at 8-9 (“HN/HX Systems provide IP/TCP/UDP/RTP header compression and payload compression in both inbound and outbound directions. A standard TCP/IP header is 40 bytes per packet, and most of that information is redundant for a given session. Header compression suppresses any redundant information, reducing the bandwidth required for the header. This compression capability requires that a large number of the fields either do not change or change only in expected ways. Inbound header compression compresses TCP/IP headers from 40 bytes to 10–12 bytes, reducing typical bandwidth usage by 15–20%. The inbound compression algorithm is a Hughes-extended version of RFC 1144. Multiple types of IP headers can be compressed, including IP headers, UDP headers, TCP headers, RTP headers, and Hughes’ PBP headers. Outbound header compression compresses IP, UDP, and RTP headers using the header fields that do not change or change in predictable ways. The outbound compression algorithm is based on RFC 3095, Robust Header Compression, and the Hughes inbound header compression algorithm. IP/UDP/RTP headers for RTP packets (types G.729 and G.723.1) are compressed. With outbound header compression, the size of the IP/UDP/RTP headers becomes 5 bytes from 40 bytes. With an average RTP payload size of 20 bytes, the expected compression ratio for

IP/UDP/RTP packets is $35/(40+20) = 58.3\%$. PEP packet payload compression uses the V.44 lossless compression algorithm. V.44 is an ITU standardized compression technology based on a Hughes-patented compression algorithm. The PEP stateful compression implementation takes advantage of the guaranteed, in-order delivery service provided by the PEP backbone protocol. Stateful compression is able to take advantage of redundancy in all messages being sent instead of only redundancy within a message, thus providing significantly better compression ratios. Compression ratios of up to 12:1 are achieved. HN/HX Systems feature IP Payload Compression for UDP Packets utilizing the IP Payload Compression Protocol (IPComp) per RFC 3173 to compress UDP traffic (for example, DNS, BRP, SNMP, Multicast traffic) using a lossless, stateless compression algorithm. The bandwidth savings is a function of traffic type. Bandwidth usage for typical DNS request traffic will be reduced by 10%, DNS responses by 30%, and SNMP traffic by 50%.’).

20. The Accused Instrumentality compresses the data with the selected encoder utilizing at least one state machine to provide compressed data having a compression ratio of over 4:1. See, e.g., <http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en> at 8-9 (“HN/HX Systems provide IP/TCP/UDP/RTP header compression and payload compression in both inbound and outbound directions. A standard TCP/IP header is 40 bytes per packet, and most of that information is redundant for a given session. Header compression suppresses any redundant information, reducing the bandwidth required for the header. This compression capability requires that a large number of the fields either do not change or change only in expected ways. Inbound header compression compresses TCP/IP headers from 40 bytes to 10–12 bytes, reducing typical bandwidth usage by 15–20%. The inbound compression algorithm is a Hughes-extended version of RFC 1144. Multiple types of IP headers can be compressed, including IP headers, UDP headers, TCP headers, RTP headers, and Hughes’ PBP headers. Outbound header compression compresses IP,

UDP, and RTP headers using the header fields that do not change or change in predictable ways. The outbound compression algorithm is based on RFC 3095, Robust Header Compression, and the Hughes inbound header compression algorithm. IP/UDP/RTP headers for RTP packets (types G.729 and G.723.1) are compressed. With outbound header compression, the size of the IP/UDP/RTP headers becomes 5 bytes from 40 bytes. With an average RTP payload size of 20 bytes, the expected compression ratio for IP/UDP/RTP packets is $35/(40+20) = 58.3\%$. PEP packet payload compression uses the V.44 lossless compression algorithm. V.44 is an ITU standardized compression technology based on a Hughes-patented compression algorithm. The PEP stateful compression implementation takes advantage of the guaranteed, in-order delivery service provided by the PEP backbone protocol. Stateful compression is able to take advantage of redundancy in all messages being sent instead of only redundancy within a message, thus providing significantly better compression ratios. Compression ratios of up to 12:1 are achieved. HN/HX Systems feature IP Payload Compression for UDP Packets utilizing the IP Payload Compression Protocol (IPComp) per RFC 3173 to compress UDP traffic (for example, DNS, BRP, SNMP, Multicast traffic) using a lossless, stateless compression algorithm. The bandwidth savings is a function of traffic type. Bandwidth usage for typical DNS request traffic will be reduced by 10%, DNS responses by 30%, and SNMP traffic by 50%.”).

21. The Accused Instrumentality point-to-point transmits the compressed data to a client. See, e.g., <http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en> at 1 (“Fully IP compliant, all HN/HX broadband satellite routers interoperate directly with other routers on the remote LAN through standard IP protocols, eliminating the need for an external router.”).

22. In the Accused Instrumentality, the compressing and the transmitting occur over a period of time which is less than a time to transmit the data in an uncompressed form. See, e.g., <http://www.hughes.com/resources/key-features-of->

hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en at 9 (“Inbound header compression compresses TCP/IP headers from 40 bytes to 10–12 bytes, reducing typical bandwidth usage by 15–20%. ... With outbound header compression, the size of the IP/UDP/RTP headers becomes 5 bytes from 40 bytes. With an average RTP payload size of 20 bytes, the expected compression ratio for IP/UDP/RTP packets is $35/(40+20) = 58.3\%$. Stateful compression is able to take advantage of redundancy in all messages being sent instead of only redundancy within a message, thus providing significantly better compression ratios. Compression ratios of up to 12:1 are achieved. ... The bandwidth savings is a function of traffic type. Bandwidth usage for typical DNS request traffic will be reduced by 10%, DNS responses by 30%, and SNMP traffic by 50%.”).

23. Defendants also infringe other claims of the ‘204 patent, directly and through inducing infringement, for similar reasons as explained above with respect to Claim 1 of the ‘204 patent.

24. By making, using, offering for sale, selling and/or importing into the United States the Accused Instrumentality, and touting the benefits of using the Accused Instrumentality’s compression features, Defendants have injured Realtime and are liable to Realtime for infringement of the ‘204 patent pursuant to 35 U.S.C. § 271.

25. As a result of Defendants’ infringement of the ‘204 patent, Plaintiff Realtime is entitled to monetary damages in an amount adequate to compensate for Defendants’ infringement, but in no event less than a reasonable royalty for the use made of the invention by Defendants, together with interest and costs as fixed by the Court.

COUNT II

INFRINGEMENT OF U.S. PATENT NO. 9,054,728

26. Plaintiff realleges and incorporates by reference paragraphs 1-25 above, as if fully set forth herein.

27. Plaintiff Realtime is the owner by assignment of United States Patent No.

9,054,728 (“the ‘728 patent”) entitled “Data compression systems and methods.” The ‘728 patent was duly and legally issued by the United States Patent and Trademark Office on June 9, 2015. A true and correct copy of the ‘728 Patent is included as Exhibit B.

Accused Instrumentality Including HN/HX Systems

28. On information and belief, Defendants have offered for sale, sold and/or imported into the United States Hughes products that infringe the ‘728 patent, and continues to do so. By way of illustrative example, these infringing products include, without limitation, Defendants’ products and services, such as HN/HX Systems, and all versions and variations thereof since the issuance of the ‘728 patent (“Accused Instrumentality”).

29. On information and belief, Defendants have directly infringed and continue to infringe the ‘728 patent, for example, through their own use and testing of the Accused Instrumentality, which constitute systems for compressing data claimed by Claim 1 of the ‘728 patent, comprising a processor; one or more content dependent data compression encoders; and a single data compression encoder; wherein the processor is configured: to analyze data within a data block to identify one or more parameters or attributes of the data wherein the analyzing of the data within the data block to identify the one or more parameters or attributes of the data excludes analyzing based solely on a descriptor that is indicative of the one or more parameters or attributes of the data within the data block; to perform content dependent data compression with the one or more content dependent data compression encoders if the one or more parameters or attributes of the data are identified; and to perform data compression with the single data compression encoder, if the one or more parameters or attributes of the data are not identified. Upon information and belief, Defendants use the Accused Instrumentality, an infringing system, for their own internal non-testing business purposes, while testing the Accused Instrumentality, and while providing technical support and repair services for the Accused Instrumentality to Defendants’ customers.

30. On information and belief, Defendants have had knowledge of the '728 patent since at least the filing of this Complaint or shortly thereafter, and on information and belief, Defendants knew of the '728 patent and knew of their infringement, including by way of this lawsuit.

31. Defendants' affirmative acts of making, using, selling, offering for sale, and/or importing the Accused Instrumentality has induced and continue to induce users of the Accused Instrumentality to use the Accused Instrumentality in its normal and customary way on compatible systems to infringe the '728 patent, knowing that when the Accused Instrumentality is used in its ordinary and customary manner with such compatible systems, such systems constitute infringing systems for compressing data comprising; a processor; one or more content dependent data compression encoders; and a single data compression encoder; wherein the processor is configured: to analyze data within a data block to identify one or more parameters or attributes of the data wherein the analyzing of the data within the data block to identify the one or more parameters or attributes of the data excludes analyzing based solely on a descriptor that is indicative of the one or more parameters or attributes of the data within the data block; to perform content dependent data compression with the one or more content dependent data compression encoders if the one or more parameters or attributes of the data are identified; and to perform data compression with the single data compression encoder, if the one or more parameters or attributes of the data are not identified. For example, Defendants explain to customers the benefits of using the Accused Instrumentality, "A standard TCP/IP header is 40 bytes per packet, and most of that information is redundant for a given session. Header compression suppresses any redundant information, reducing the bandwidth required for the header. ... PEP packet payload compression uses the V.44 lossless compression algorithm. ... Stateful compression is able to take advantage of redundancy in all messages being sent instead of only redundancy within a message, thus providing significantly better compression ratios. Compression ratios of up to 12:1 are

achieved.” See <http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en> at 9. Defendants specifically intended and were aware that the normal and customary use of the Accused Instrumentality on compatible systems would infringe the ‘728 patent. Defendants performed the acts that constitute induced infringement, and would induce actual infringement, with the knowledge of the ‘728 patent and with the knowledge, or willful blindness to the probability, that the induced acts would constitute infringement. On information and belief, Defendants engaged in such inducement to promote the sales of the Accused Instrumentality, *e.g.*, through Defendants’ user manuals, product support, marketing materials, and training materials to actively induce the users of the accused products to infringe the ‘728 patent. Accordingly, Defendants have induced and continue to induce end users of the accused products to use the accused products in their ordinary and customary way with compatible systems to make and/or use systems infringing the ‘728 patent, knowing that such use of the Accused Instrumentality with compatible systems will result in infringement of the ‘728 patent.

32. Defendants also indirectly infringe the ‘728 patent by manufacturing, using, selling, offering for sale, and/or importing the accused products, with knowledge that the accused products were and are especially manufactured and/or especially adapted for use in infringing the ‘728 patent and are not a staple article or commodity of commerce suitable for substantial non-infringing use. On information and belief, the Accused Instrumentality is designed to function with compatible hardware to create systems for compressing data comprising; a processor; one or more content dependent data compression encoders; and a single data compression encoder; wherein the processor is configured: to analyze data within a data block to identify one or more parameters or attributes of the data wherein the analyzing of the data within the data block to identify the one or more parameters or attributes of the data excludes analyzing based solely on a descriptor that is indicative of the one or more parameters or attributes

of the data within the data block; to perform content dependent data compression with the one or more content dependent data compression encoders if the one or more parameters or attributes of the data are identified; and to perform data compression with the single data compression encoder, if the one or more parameters or attributes of the data are not identified. Because the Accused Instrumentality is designed to operate as the claimed system for compressing input data, the Accused Instrumentality has no substantial non-infringing uses, and any other uses would be unusual, far-fetched, illusory, impractical, occasional, aberrant, or experimental. Defendants' manufacture, use, sale, offering for sale, and/or importation of the Accused Instrumentality constitutes contributory infringement of the '728 patent.

33. The Accused Instrumentality is a system for compressing data, comprising a processor. For example, the Accused Instrumentality must contain a processor.

34. The Accused Instrumentality is a system for compressing data, comprising one or more content dependent data compression encoders. For example, the Accused Instrumentality recognizes packet header data and removes redundancies in such data, which is a content dependent data compression encoder. This results in transmitting fewer bits to represent a data set and decreased use of network bandwidth. See, e.g., <http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en> at 9 ("A standard TCP/IP header is 40 bytes per packet, and most of that information is redundant for a given session. Header compression suppresses any redundant information, reducing the bandwidth required for the header. This compression capability requires that a large number of the fields either do not change or change only in expected ways. Inbound header compression compresses TCP/IP headers from 40 bytes to 10–12 bytes, reducing typical bandwidth usage by 15–20%. The inbound compression algorithm is a Hughes-extended version of RFC 1144. Multiple types of IP headers can be compressed, including IP headers, UDP headers, TCP headers, RTP headers, and Hughes' PBP headers.").

35. The Accused Instrumentality comprises a single data compression encoder. See, e.g., <http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en> at 9 (“PEP packet payload compression uses the V.44 lossless compression algorithm. V.44 is an ITU standardized compression technology based on a Hughes-patented compression algorithm.”).

36. The Accused Instrumentality analyzes data within a data block to identify one or more parameters or attributes of the data, for example, whether any information in the header is redundant. See, e.g., <http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en> at 9 (“A standard TCP/IP header is 40 bytes per packet, and most of that information is redundant for a given session. Header compression suppresses any redundant information, reducing the bandwidth required for the header. This compression capability requires that a large number of the fields either do not change or change only in expected ways. Inbound header compression compresses TCP/IP headers from 40 bytes to 10–12 bytes, reducing typical bandwidth usage by 15–20%. The inbound compression algorithm is a Hughes-extended version of RFC 1144. Multiple types of IP headers can be compressed, including IP headers, UDP headers, TCP headers, RTP headers, and Hughes’ PBP headers.”).

37. The Accused Instrumentality performs content dependent data compression with the one or more content dependent data compression encoders if the one or more parameters or attributes of the data are identified, for example, whether any information in the header is redundant. See, e.g., <http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en> at 9 (“A standard TCP/IP header is 40 bytes per packet, and most of that information is redundant for a given session. Header compression suppresses any redundant information, reducing the bandwidth required for the header. This compression capability requires that a large number of the fields either do not change or change only in expected ways. Inbound

header compression compresses TCP/IP headers from 40 bytes to 10–12 bytes, reducing typical bandwidth usage by 15–20%. The inbound compression algorithm is a Hughes-extended version of RFC 1144. Multiple types of IP headers can be compressed, including IP headers, UDP headers, TCP headers, RTP headers, and Hughes’ PBP headers.”).

38. The Accused Instrumentality performs data compression with the single data compression encoder, if the one or more parameters or attributes of the data are not identified. See, e.g., <http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en> at 9 (“PEP packet payload compression uses the V.44 lossless compression algorithm. V.44 is an ITU standardized compression technology based on a Hughes-patented compression algorithm.”).

39. Defendants also infringe other claims of the ‘728 patent, directly and through inducing infringement and contributory infringement, for similar reasons as explained above with respect to Claim 1 of the ‘728 patent.

40. By making, using, offering for sale, selling and/or importing into the United States the Accused Instrumentality, and touting the benefits of using the Accused Instrumentality’s compression features, Defendants have injured Realtime and are liable to Realtime for infringement of the ‘728 patent pursuant to 35 U.S.C. § 271.

41. As a result of Defendants’ infringement of the ‘728 patent, Plaintiff Realtime is entitled to monetary damages in an amount adequate to compensate for Defendants’ infringement, but in no event less than a reasonable royalty for the use made of the invention by Defendants, together with interest and costs as fixed by the Court.

COUNT III

INFRINGEMENT OF U.S. PATENT NO. 7,358,867

42. Plaintiff realleges and incorporates by reference paragraphs 1-41 above, as if fully set forth herein.

43. Plaintiff Realtime is the owner by assignment of United States Patent No. 7,358,867 entitled “Content independent data compression method and system.” The ‘867 patent was duly and legally issued by the United States Patent and Trademark Office on April 15, 2008. A true and correct copy of the ‘867 Patent is included as Exhibit C.

Accused Instrumentality Including HN/HX Systems

44. On information and belief, Defendants have offered for sale, sold and/or imported into the United States Hughes products that infringe the ‘867 patent, and continues to do so. By way of illustrative example, these infringing products include, without limitation, Defendants’ products and services, such as HN/HX Systems, and all versions and variations thereof since the issuance of the ‘867 patent (“Accused Instrumentality”).

45. On information and belief, Defendants have directly infringed and continue to infringe the ‘867 patent, for example, through their own use and testing of the accused products to practice compression methods claimed by the ‘867 patent, including a method comprising: receiving a plurality of data blocks; determining whether or not to compress each one of said plurality of data blocks with a particular one or more of several encoders; if said determination is to compress with said particular one or more of said several encoders for a particular one of said plurality of data blocks; compressing said particular one of said plurality of data blocks with said particular one or more of said several encoders to provide a compressed data block; providing a data compression type descriptor representative of said particular one or more of said several encoders; outputting said data compression type descriptor and said compressed data block; if said determination is to not compress said particular one of said plurality of data blocks; providing a null data compression type descriptor representative of said determination not to compress; and outputting said null data compression type descriptor and said particular one of said plurality of data blocks. On information and belief, Defendants use the Accused Instrumentality in its ordinary and customary fashion for their own internal non-

testing business purposes, while testing the Accused Instrumentality, and while providing technical support and repair services for the Accused Instrumentality to Defendants' customers, and use of the Accused Instrumentality in its ordinary and customary fashion results in infringement of the methods claimed by the '867 patent.

46. On information and belief, Defendants have had knowledge of the '867 patent since at least the filing of this Complaint or shortly thereafter, and on information and belief, Defendants knew of the '867 patent and knew of their infringement, including by way of this lawsuit.

47. Defendants' affirmative acts of making, using, selling, offering for sale, and/or importing the Accused Instrumentality have induced and continue to induce users of the Accused Instrumentality to use the Accused Instrumentality in its normal and customary way to infringe the '867 patent by practicing compression methods claimed by the '867 patent, including a method comprising: receiving a plurality of data blocks; determining whether or not to compress each one of said plurality of data blocks with a particular one or more of several encoders; if said determination is to compress with said particular one or more of said several encoders for a particular one of said plurality of data blocks; compressing said particular one of said plurality of data blocks with said particular one or more of said several encoders to provide a compressed data block; providing a data compression type descriptor representative of said particular one or more of said several encoders; outputting said data compression type descriptor and said compressed data block; if said determination is to not compress said particular one of said plurality of data blocks; providing a null data compression type descriptor representative of said determination not to compress; and outputting said null data compression type descriptor and said particular one of said plurality of data blocks. For example, Defendants explain to customers the benefits of using the Accused Instrumentality, "Hughes HN/HX Systems provide high-speed IP satellite connectivity between corporate headquarters and/or the Internet and multiple remote sites. HN/HX Systems include a

variety of standard and specialized IP features designed to optimize space segment and minimize latencies for IP networking protocols and services. ... PEP packet payload compression uses the V.44 lossless compression algorithm. V.44 is an ITU standardized compression technology based on a Hughes-patented compression algorithm.” See, e.g., <http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en> at 2, 9; <https://tools.ietf.org/html/rfc3051> (“V.44 Packet Method is based upon the LZJH data compression algorithm. Throughout the remainder of this document the terms V.44 Packet Method and LZJH are synonymous. ... **4.4 Minimum packet size threshold:** As stated in [RFC2393], small packets may not compress well. Informal tests using the LZJH algorithm on internet web pages and e-mail files show that the average payload size that typically produces expanded data is approximately 50 bytes. Thus, **implementations may prefer not to attempt to compress payloads of approximately 50 bytes or smaller.** **4.5 Compressibility test:** The LZJH algorithm, as described in [V44], **is easily modified to incorporate an adaptive compressibility test**, as referenced in [RFC2393]. Annex B of [V44] specifies the mechanism for including such a test in LZJH.”). Defendants specifically intended and were aware that the normal and customary use of the Accused Instrumentality would infringe the ‘867 patent. Defendants performed the acts that constitute induced infringement, and would induce actual infringement, with the knowledge of the ‘867 patent and with the knowledge, or willful blindness to the probability, that the induced acts would constitute infringement. On information and belief, Defendants engaged in such inducement to promote the sales of the Accused Instrumentality, e.g., through Defendants’ user manuals, product support, marketing materials, and training materials to actively induce the users of the Accused Instrumentality to infringe the ‘867 patent. Accordingly, Defendants have induced and continue to induce users of the Accused Instrumentality to use the Accused Instrumentality in its ordinary and customary way to infringe the ‘867 patent, knowing that such use constitutes infringement of the ‘867

patent.

48. The Accused Instrumentality practices a method comprising: receiving a plurality of data blocks. See, e.g., <http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en> at 2:

Hughes HN/HX Systems provide high-speed IP satellite connectivity between corporate headquarters and/or the Internet and multiple remote sites.

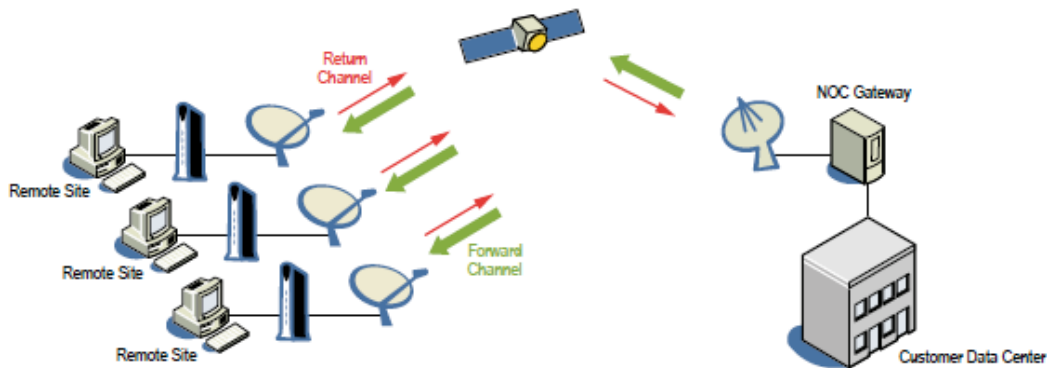


Figure 1. System Overview

49. Upon information and belief, the Accused Instrumentality determines whether or not to compress each one of said plurality of data blocks with a particular one or more of several encoders. See, e.g., <http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en> at 9 (“PEP packet payload compression uses the V.44 lossless compression algorithm. V.44 is an ITU standardized compression technology based on a Hughes-patented compression algorithm.”); <https://tools.ietf.org/html/rfc3051> (“V.44 Packet Method is based upon the LZJH data compression algorithm. Throughout the remainder of this document the terms V.44 Packet Method and LZJH are synonymous. ... **4.4 Minimum packet size threshold:** As stated in [RFC2393], small packets may not compress well. Informal tests using the LZJH algorithm on internet web pages and e-mail files show that the average payload size that typically produces expanded data is approximately 50 bytes. Thus, **implementations may prefer not to attempt to compress payloads of approximately**

50 bytes or smaller. 4.5 Compressibility test: The LZJH algorithm, as described in [V44], **is easily modified to incorporate an adaptive compressibility test**, as referenced in [RFC2393]. Annex B of [V44] specifies the mechanism for including such a test in LZJH.”).).

50. Upon information and belief, in the Accused Instrumentality, if said determination is to compress with said particular one or more of said several encoders for a particular one of said plurality of data blocks; compressing said particular one of said plurality of data blocks with said particular one or more of said several encoders to provide a compressed data block. See, e.g., <http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en> at 9 (“PEP packet payload compression uses the V.44 lossless compression algorithm. V.44 is an ITU standardized compression technology based on a Hughes-patented compression algorithm.”); <https://tools.ietf.org/html/rfc3051> (“V.44 Packet Method is based upon the LZJH data compression algorithm. Throughout the remainder of this document the terms V.44 Packet Method and LZJH are synonymous. ... **4.4 Minimum packet size threshold:** As stated in [RFC2393], small packets may not compress well. Informal tests using the LZJH algorithm on internet web pages and e-mail files show that the average payload size that typically produces expanded data is approximately 50 bytes. Thus, **implementations may prefer not to attempt to compress payloads of approximately 50 bytes or smaller. 4.5 Compressibility test:** The LZJH algorithm, as described in [V44], **is easily modified to incorporate an adaptive compressibility test**, as referenced in [RFC2393]. Annex B of [V44] specifies the mechanism for including such a test in LZJH.”).).

51. Upon information and belief, the Accused Instrumentality provides a data compression type descriptor representative of said particular one or more of said several encoders and outputs said data compression type descriptor and said compressed data block. See, e.g., <http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx->

broadband-satellite-routers/download?locale=en at 9 (“PEP packet payload compression uses the V.44 lossless compression algorithm. V.44 is an ITU standardized compression technology based on a Hughes-patented compression algorithm.”); <https://tools.ietf.org/html/rfc3051> (“V.44 Packet Method is based upon the LZJH data compression algorithm. Throughout the remainder of this document the terms V.44 Packet Method and LZJH are synonymous. ... **4.4 Minimum packet size threshold:** As stated in [RFC2393], small packets may not compress well. Informal tests using the LZJH algorithm on internet web pages and e-mail files show that the average payload size that typically produces expanded data is approximately 50 bytes. Thus, **implementations may prefer not to attempt to compress payloads of approximately 50 bytes or smaller.** **4.5 Compressibility test:** The LZJH algorithm, as described in [V44], **is easily modified to incorporate an adaptive compressibility test**, as referenced in [RFC2393]. Annex B of [V44] specifies the mechanism for including such a test in LZJH.”).).

52. Upon information and belief, if said determination is to not compress said particular one of said plurality of data blocks; the Accused Instrumentality provides a null data compression type descriptor representative of said determination not to compress; and outputting said null data compression type descriptor and said particular one of said plurality of data blocks. See, e.g., <http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en> at 9 (“PEP packet payload compression uses the V.44 lossless compression algorithm. V.44 is an ITU standardized compression technology based on a Hughes-patented compression algorithm.”); <https://tools.ietf.org/html/rfc3051> (“V.44 Packet Method is based upon the LZJH data compression algorithm. Throughout the remainder of this document the terms V.44 Packet Method and LZJH are synonymous. ... **4.4 Minimum packet size threshold:** As stated in [RFC2393], small packets may not compress well. Informal tests using the LZJH algorithm on internet web pages and e-mail files show that the average

payload size that typically produces expanded data is approximately 50 bytes. Thus, **implementations may prefer not to attempt to compress payloads of approximately 50 bytes or smaller.** **4.5 Compressibility test:** The LZJH algorithm, as described in [V44], **is easily modified to incorporate an adaptive compressibility test**, as referenced in [RFC2393]. Annex B of [V44] specifies the mechanism for including such a test in LZJH.”).).

53. Defendants also infringe other claims of the ‘867 patent, directly and through inducing infringement, for similar reasons as explained above with respect to Claim 16 of the ‘867 patent.

54. By making, using, offering for sale, selling and/or importing into the United States the Accused Instrumentality, and touting the benefits of using the Accused Instrumentality’s compression features, Defendants have injured Realtime and are liable to Realtime for infringement of the ‘867 patent pursuant to 35 U.S.C. § 271.

55. As a result of Defendants’ infringement of the ‘867 patent, Plaintiff Realtime is entitled to monetary damages in an amount adequate to compensate for Defendants’ infringement, but in no event less than a reasonable royalty for the use made of the invention by Defendants, together with interest and costs as fixed by the Court.

Accused Instrumentality Including Hughes Web Optimizer

56. On information and belief, Defendants have offered for sale, sold and/or imported into the United States Hughes products that infringe the ‘867 patent, and continues to do so. By way of illustrative example, these infringing products include, without limitation, Defendants’ products and services, such as Hughes Web Optimizer, and all versions and variations thereof since the issuance of the ‘867 patent (“Accused Instrumentality”).

57. On information and belief, Defendants have directly infringed and continue to infringe the ‘867 patent, for example, through their own use and testing of the accused products to practice compression methods claimed by the ‘867 patent, including

a method comprising: receiving a plurality of data blocks; determining whether or not to compress each one of said plurality of data blocks with a particular one or more of several encoders; if said determination is to compress with said particular one or more of said several encoders for a particular one of said plurality of data blocks; compressing said particular one of said plurality of data blocks with said particular one or more of said several encoders to provide a compressed data block; providing a data compression type descriptor representative of said particular one or more of said several encoders; outputting said data compression type descriptor and said compressed data block; if said determination is to not compress said particular one of said plurality of data blocks; providing a null data compression type descriptor representative of said determination not to compress; and outputting said null data compression type descriptor and said particular one of said plurality of data blocks. On information and belief, Defendants use the Accused Instrumentality in its ordinary and customary fashion for their own internal non-testing business purposes, while testing the Accused Instrumentality, and while providing technical support and repair services for the Accused Instrumentality to Defendants' customers, and use of the Accused Instrumentality in its ordinary and customary fashion results in infringement of the methods claimed by the '867 patent.

58. On information and belief, Defendants have had knowledge of the '867 patent since at least the filing of this Complaint or shortly thereafter, and on information and belief, Defendants knew of the '867 patent and knew of their infringement, including by way of this lawsuit.

59. Defendants' affirmative acts of making, using, selling, offering for sale, and/or importing the Accused Instrumentality have induced and continue to induce users of the Accused Instrumentality to use the Accused Instrumentality in its normal and customary way to infringe the '867 patent by practicing compression methods claimed by the '867 patent, including a method comprising: receiving a plurality of data blocks; determining whether or not to compress each one of said plurality of data blocks with a

particular one or more of several encoders; if said determination is to compress with said particular one or more of said several encoders for a particular one of said plurality of data blocks; compressing said particular one of said plurality of data blocks with said particular one or more of said several encoders to provide a compressed data block; providing a data compression type descriptor representative of said particular one or more of said several encoders; outputting said data compression type descriptor and said compressed data block; if said determination is to not compress said particular one of said plurality of data blocks; providing a null data compression type descriptor representative of said determination not to compress; and outputting said null data compression type descriptor and said particular one of said plurality of data blocks. For example, Defendants explain to customers the benefits of using the Accused Instrumentality, “In addition to the payload optimization techniques already mentioned, Defendants have also implemented “Web Optimizers,” which work at the HTTP layer and are able to compress HTTP content. A Web Optimizer is typically implemented as a server at the HN or HX hub station and applies a number of data-specific compression techniques including image compression for JPG and GIF images. Through the application of the Web Optimizer, Hughes can reduce HTTP traffic volume by up to 30 percent. It should be noted that the application of compression on images results in loss of image quality. The higher the compression savings the greater the impact to image quality.” *See, e.g.,* <http://www.hughes.com/resources/hn-slash-hx-bandwidth-efficiency/download?locale=en> at 6. Defendants specifically intended and were aware that the normal and customary use of the Accused Instrumentality would infringe the ‘867 patent. Defendants performed the acts that constitute induced infringement, and would induce actual infringement, with the knowledge of the ‘867 patent and with the knowledge, or willful blindness to the probability, that the induced acts would constitute infringement. On information and belief, Defendants engaged in such inducement to promote the sales of the Accused Instrumentality, *e.g.,* through Defendants’ user manuals,

product support, marketing materials, and training materials to actively induce the users of the Accused Instrumentality to infringe the '867 patent. Accordingly, Defendants have induced and continue to induce users of the Accused Instrumentality to use the Accused Instrumentality in its ordinary and customary way to infringe the '867 patent, knowing that such use constitutes infringement of the '867 patent.

60. The Accused Instrumentality practices a method comprising: receiving a plurality of data blocks, *e.g.*, from the Internet. *See, e.g.*, <http://www.hughes.com/resources/hn-slash-hx-bandwidth-efficiency/download?locale=en> at 6 (“In addition to the payload optimization techniques already mentioned, Defendants have also implemented “Web Optimizers,” which work at the HTTP layer and are able to compress HTTP content. A Web Optimizer is typically implemented as a server at the HN or HX hub station ... Figure 8 illustrates that the Web Optimizer is placed between the Internet and the satellite network hub.”)

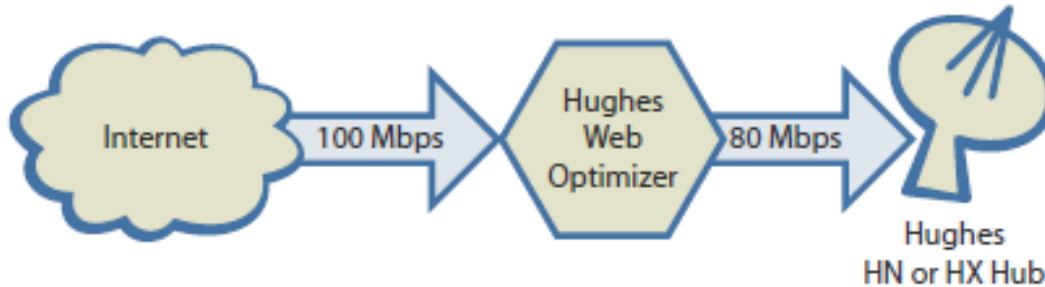


Figure 8. Web Optimizer Implementation

61. Upon information and belief, the Accused Instrumentality determines whether or not to compress each one of said plurality of data blocks with a particular one or more of several encoders. For example, as the Accused Instrumentality “applies a number of data-specific compression techniques including image compression for JPG and GIF images”, there may be certain data types that are not compressed. *See, e.g.*, <http://www.hughes.com/resources/hn-slash-hx-bandwidth-efficiency/download?locale=en>

<http://www.hughes.com/resources/hn-slash-hx-bandwidth-efficiency/download?locale=en> at 6.

62. Upon information and belief, in the Accused Instrumentality, if said determination is to compress with said particular one or more of said several encoders for a particular one of said plurality of data blocks; compressing said particular one of said plurality of data blocks with said particular one or more of said several encoders to provide a compressed data block. For example, the Accused Instrumentality compresses JPG images with one technique and GIF images with another technique. *See, e.g.,* <http://www.hughes.com/resources/hn-slash-hx-bandwidth-efficiency/download?locale=en> at 6 (“Web Optimizer ... applies a number of data-specific compression techniques including image compression for JPG and GIF images”).

63. Upon information and belief, the Accused Instrumentality provides a data compression type descriptor representative of said particular one or more of said several encoders and outputs said data compression type descriptor and said compressed data block. *See, e.g.,* <http://www.hughes.com/resources/hn-slash-hx-bandwidth-efficiency/download?locale=en> at 6 (“Web Optimizer ... applies a number of data-specific compression techniques including image compression for JPG and GIF images”).

64. Upon information and belief, if said determination is to not compress said particular one of said plurality of data blocks (for example, if the data is not a type for which a data-specific compression technique has been assigned); the Accused Instrumentality provides a null data compression type descriptor representative of said determination not to compress; and outputting said null data compression type descriptor and said particular one of said plurality of data blocks. *See, e.g.,* <http://www.hughes.com/resources/hn-slash-hx-bandwidth-efficiency/download?locale=en> at 6 (“Web Optimizer ... applies a number of data-specific compression techniques including image compression for JPG and GIF images”).

65. Defendants also infringe other claims of the ‘867 patent, directly and through inducing infringement, for similar reasons as explained above with respect to

Claim 16 of the ‘867 patent.

66. By making, using, offering for sale, selling and/or importing into the United States the Accused Instrumentality, and touting the benefits of using the Accused Instrumentality’s compression features, Defendants have injured Realtime and are liable to Realtime for infringement of the ‘867 patent pursuant to 35 U.S.C. § 271.

67. As a result of Defendants’ infringement of the ‘867 patent, Plaintiff Realtime is entitled to monetary damages in an amount adequate to compensate for Defendants’ infringement, but in no event less than a reasonable royalty for the use made of the invention by Defendants, together with interest and costs as fixed by the Court.

COUNT IV

INFRINGEMENT OF U.S. PATENT NO. 8,502,707

68. Plaintiff realleges and incorporates by reference paragraphs 1-67 above, as if fully set forth herein.

69. Plaintiff Realtime is the owner by assignment of United States Patent No. 8,502,707 entitled “Data compression systems and methods.” The ‘707 patent was duly and legally issued by the United States Patent and Trademark Office on August 6, 2013. A true and correct copy of the ‘707 Patent is included as Exhibit D.

Accused Instrumentality Including HN/HX Systems

70. On information and belief, Defendants have offered for sale, sold and/or imported into the United States Hughes products that infringe the ‘707 patent, and continues to do so. By way of illustrative example, these infringing products include, without limitation, Defendants’ products and services, such as HN/HX Systems, and all versions and variations thereof since the issuance of the ‘707 patent (“Accused Instrumentality”).

71. On information and belief, Defendants have directly infringed and continue to infringe the ‘707 patent, for example, through their own use and testing of the

accused products to practice compression methods claimed by the '707 patent, including a method comprising: receiving a data block; outputting data, wherein said outputted data is determined to be: said data block in received form, or a compressed data block wherein said compressed data block is provided by one of a plurality of compression techniques based on a determination between said plurality of compression techniques, and a determination is made whether data expansion occurred with respect to said compressed data block; and outputting a descriptor with said outputted data indicative of no compression or the one of said plurality of compression techniques utilized to provide said compressed data block. On information and belief, Defendants use the Accused Instrumentality in its ordinary and customary fashion for their own internal non-testing business purposes, while testing the Accused Instrumentality, and while providing technical support and repair services for the Accused Instrumentality to Defendants' customers, and use of the Accused Instrumentality in its ordinary and customary fashion results in infringement of the methods claimed by the '707 patent.

72. On information and belief, Defendants have had knowledge of the '707 patent since at least the filing of this Complaint or shortly thereafter, and on information and belief, Defendants knew of the '707 patent and knew of their infringement, including by way of this lawsuit.

73. Defendants' affirmative acts of making, using, selling, offering for sale, and/or importing the Accused Instrumentality have induced and continue to induce users of the Accused Instrumentality to use the Accused Instrumentality in its normal and customary way to infringe the '707 patent by practicing compression methods claimed by the '707 patent, including a method comprising: receiving a data block; outputting data, wherein said outputted data is determined to be: said data block in received form, or a compressed data block wherein said compressed data block is provided by one of a plurality of compression techniques based on a determination between said plurality of compression techniques, and a determination is made whether data expansion occurred

with respect to said compressed data block; and outputting a descriptor with said outputted data indicative of no compression or the one of said plurality of compression techniques utilized to provide said compressed data block. For example, Defendants explain to customers the benefits of using the Accused Instrumentality, “Hughes HN/HX Systems provide high-speed IP satellite connectivity between corporate headquarters and/or the Internet and multiple remote sites. HN/HX Systems include a variety of standard and specialized IP features designed to optimize space segment and minimize latencies for IP networking protocols and services. ... PEP packet payload compression uses the V.44 lossless compression algorithm. V.44 is an ITU standardized compression technology based on a Hughes-patented compression algorithm.” See, e.g., <http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en> at 2, 9; <https://tools.ietf.org/html/rfc3051> (“V.44 Packet Method is based upon the LZJH data compression algorithm. Throughout the remainder of this document the terms V.44 Packet Method and LZJH are synonymous. ... **4.4 Minimum packet size threshold:** As stated in [RFC2393], small packets may not compress well. Informal tests using the LZJH algorithm on internet web pages and e-mail files show that the average payload size that typically produces expanded data is approximately 50 bytes. Thus, **implementations may prefer not to attempt to compress payloads of approximately 50 bytes or smaller.** **4.5 Compressibility test:** The LZJH algorithm, as described in [V44], **is easily modified to incorporate an adaptive compressibility test**, as referenced in [RFC2393]. Annex B of [V44] specifies the mechanism for including such a test in LZJH.”). Defendants specifically intended and were aware that the normal and customary use of the Accused Instrumentality would infringe the ‘707 patent. Defendants performed the acts that constitute induced infringement, and would induce actual infringement, with the knowledge of the ‘707 patent and with the knowledge, or willful blindness to the probability, that the induced acts would constitute infringement. On information and belief, Defendants engaged in

such inducement to promote the sales of the Accused Instrumentality, *e.g.*, through Defendants' user manuals, product support, marketing materials, and training materials to actively induce the users of the Accused Instrumentality to infringe the '707 patent. Accordingly, Defendants have induced and continue to induce users of the Accused Instrumentality to use the Accused Instrumentality in its ordinary and customary way to infringe the '707 patent, knowing that such use constitutes infringement of the '707 patent.

74. The Accused Instrumentality practices a method comprising: receiving a data block. See, *e.g.*, <http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en> at 2:

Hughes HN/HX Systems provide high-speed IP satellite connectivity between corporate headquarters and/or the Internet and multiple remote sites.

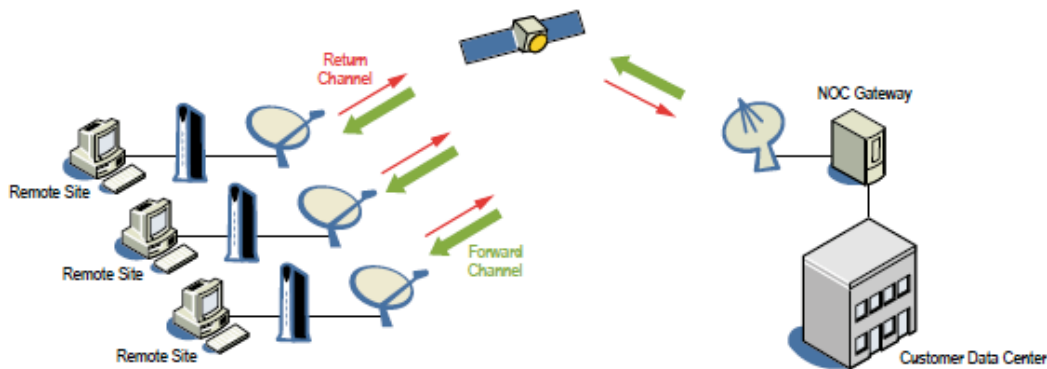


Figure 1. System Overview

75. On information and belief, the Accused Instrumentality outputs data, wherein said outputted data is determined to be: said data block in received form, or a compressed data block. See, *e.g.*, <http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en> at 2:

Hughes HN/HX Systems provide high-speed IP satellite connectivity between corporate headquarters and/or the Internet and multiple remote sites.

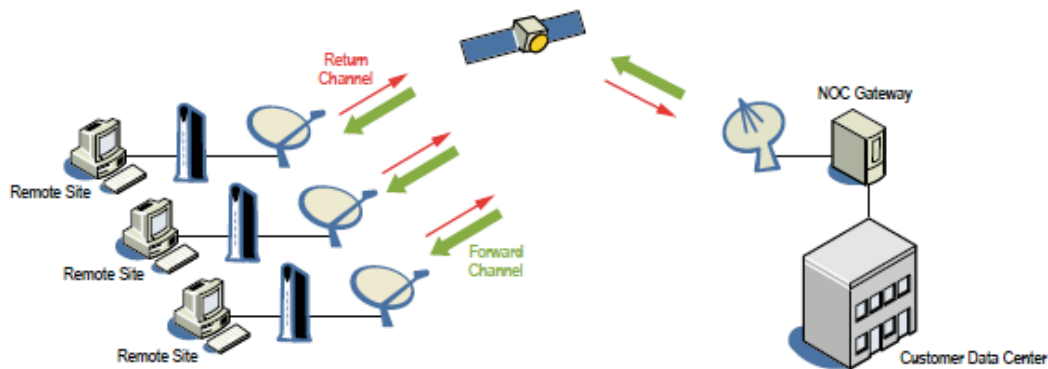


Figure 1. System Overview

<http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en> at 9 (“PEP packet payload compression uses the V.44 lossless compression algorithm. V.44 is an ITU standardized compression technology based on a Hughes-patented compression algorithm.”); <https://tools.ietf.org/html/rfc3051> (“V.44 Packet Method is based upon the LZJH data compression algorithm. Throughout the remainder of this document the terms V.44 Packet Method and LZJH are synonymous. ... **4.4 Minimum packet size threshold:** As stated in [RFC2393], small packets may not compress well. Informal tests using the LZJH algorithm on internet web pages and e-mail files show that the average payload size that typically produces expanded data is approximately 50 bytes. Thus, **implementations may prefer not to attempt to compress payloads of approximately 50 bytes or smaller.** **4.5 Compressibility test:** The LZJH algorithm, as described in [V44], **is easily modified to incorporate an adaptive compressibility test**, as referenced in [RFC2393]. Annex B of [V44] specifies the mechanism for including such a test in LZJH.”).).

76. In the Accused Instrumentality, the compressed data block is provided by one of a plurality of compression techniques based on a determination between said plurality of compression techniques. See, e.g., <http://www.hughes.com/resources/key->

features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en at 8-9

(“HN/HX Systems provide IP/TCP/UDP/RTP header compression and payload compression in both inbound and outbound directions. A standard TCP/IP header is 40 bytes per packet, and most of that information is redundant for a given session. Header compression suppresses any redundant information, reducing the bandwidth required for the header. This compression capability requires that a large number of the fields either do not change or change only in expected ways. Inbound header compression compresses TCP/IP headers from 40 bytes to 10–12 bytes, reducing typical bandwidth usage by 15–20%. The inbound compression algorithm is a Hughes-extended version of RFC 1144. Multiple types of IP headers can be compressed, including IP headers, UDP headers, TCP headers, RTP headers, and Hughes’ PBP headers. Outbound header compression compresses IP, UDP, and RTP headers using the header fields that do not change or change in predictable ways. The outbound compression algorithm is based on RFC 3095, Robust Header Compression, and the Hughes inbound header compression algorithm. IP/UDP/RTP headers for RTP packets (types G.729 and G.723.1) are compressed. With outbound header compression, the size of the IP/UDP/RTP headers becomes 5 bytes from 40 bytes. With an average RTP payload size of 20 bytes, the expected compression ratio for IP/UDP/RTP packets is $35/(40+20) = 58.3\%$. PEP packet payload compression uses the V.44 lossless compression algorithm. V.44 is an ITU standardized compression technology based on a Hughes-patented compression algorithm. The PEP stateful compression implementation takes advantage of the guaranteed, in-order delivery service provided by the PEP backbone protocol. Stateful compression is able to take advantage of redundancy in all messages being sent instead of only redundancy within a message, thus providing significantly better compression ratios. Compression ratios of up to 12:1 are achieved. HN/HX Systems feature IP Payload Compression for UDP Packets utilizing the IP Payload Compression Protocol (IPComp) per RFC 3173 to compress UDP traffic (for example, DNS, BRP, SNMP, Multicast traffic) using a lossless, stateless

compression algorithm. The bandwidth savings is a function of traffic type. Bandwidth usage for typical DNS request traffic will be reduced by 10%, DNS responses by 30%, and SNMP traffic by 50%.”).

77. On information and belief, in the Accused Instrumentality, a determination is made whether data expansion occurred with respect to said compressed data block. See, e.g., <http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en> at 9 (“PEP packet payload compression uses the V.44 lossless compression algorithm. V.44 is an ITU standardized compression technology based on a Hughes-patented compression algorithm.”); <https://tools.ietf.org/html/rfc3051> (“V.44 Packet Method is based upon the LZJH data compression algorithm. Throughout the remainder of this document the terms V.44 Packet Method and LZJH are synonymous. ... **4.4 Minimum packet size threshold:** As stated in [RFC2393], small packets may not compress well. Informal tests using the LZJH algorithm on internet web pages and e-mail files show that the average payload size that typically produces **expanded data** is approximately 50 bytes. Thus, **implementations may prefer not to attempt to compress payloads of approximately 50 bytes or smaller.** **4.5 Compressibility test:** The LZJH algorithm, as described in [V44], **is easily modified to incorporate an adaptive compressibility test**, as referenced in [RFC2393]. Annex B of [V44] specifies the mechanism for including such a test in LZJH.”).).

78. On information and belief, the Accused Instrumentality outputs a descriptor with said outputted data indicative of no compression or the one of said plurality of compression techniques utilized to provide said compressed data block. See, e.g., <http://www.hughes.com/resources/key-features-of-hughes-hn-slash-hx-broadband-satellite-routers/download?locale=en> at 9 (“HN/HX Systems provide IP/TCP/UDP/RTP header compression and payload compression in both inbound and outbound directions. A standard TCP/IP header is 40 bytes per packet, and most of that information is

redundant for a given session. Header compression suppresses any redundant information, reducing the bandwidth required for the header. This compression capability requires that a large number of the fields either do not change or change only in expected ways. Inbound header compression compresses TCP/IP headers from 40 bytes to 10–12 bytes, reducing typical bandwidth usage by 15–20%. The inbound compression algorithm is a Hughes-extended version of RFC 1144. Multiple types of IP headers can be compressed, including IP headers, UDP headers, TCP headers, RTP headers, and Hughes' PBP headers. Outbound header compression compresses IP, UDP, and RTP headers using the header fields that do not change or change in predictable ways. The outbound compression algorithm is based on RFC 3095, Robust Header Compression, and the Hughes inbound header compression algorithm. IP/UDP/RTP headers for RTP packets (types G.729 and G.723.1) are compressed. With outbound header compression, the size of the IP/UDP/RTP headers becomes 5 bytes from 40 bytes. With an average RTP payload size of 20 bytes, the expected compression ratio for IP/UDP/RTP packets is $35/(40+20) = 58.3 \%$. PEP packet payload compression uses the V.44 lossless compression algorithm. V.44 is an ITU standardized compression technology based on a Hughes-patented compression algorithm. The PEP stateful compression implementation takes advantage of the guaranteed, in-order delivery service provided by the PEP backbone protocol. Stateful compression is able to take advantage of redundancy in all messages being sent instead of only redundancy within a message, thus providing significantly better compression ratios. Compression ratios of up to 12:1 are achieved. HN/HX Systems feature IP Payload Compression for UDP Packets utilizing the IP Payload Compression Protocol (IPComp) per RFC 3173 to compress UDP traffic (for example, DNS, BRP, SNMP, Multicast traffic) using a lossless, stateless compression algorithm. The bandwidth savings is a function of traffic type. Bandwidth usage for typical DNS request traffic will be reduced by 10%, DNS responses by 30%, and SNMP traffic by 50%.”); <https://tools.ietf.org/html/rfc3051> (“V.44 Packet Method is based upon

the LZJH data compression algorithm. Throughout the remainder of this document the terms V.44 Packet Method and LZJH are synonymous. ... **4.4 Minimum packet size threshold:** As stated in [RFC2393], small packets may not compress well. Informal tests using the LZJH algorithm on internet web pages and e-mail files show that the average payload size that typically produces **expanded data** is approximately 50 bytes. Thus, **implementations may prefer not to attempt to compress payloads of approximately 50 bytes or smaller.** **4.5 Compressibility test:** The LZJH algorithm, as described in [V44], **is easily modified to incorporate an adaptive compressibility test**, as referenced in [RFC2393]. Annex B of [V44] specifies the mechanism for including such a test in LZJH.”).).

79. Defendants also infringe other claims of the ‘707 patent, directly and through inducing infringement and contributory infringement, for similar reasons as explained above with respect to Claim 16 of the ‘707 patent.

80. By making, using, offering for sale, selling and/or importing into the United States the Accused Instrumentality, and touting the benefits of using the Accused Instrumentality’s compression features, Defendants have injured Realtime and are liable to Realtime for infringement of the ‘707 patent pursuant to 35 U.S.C. § 271.

81. As a result of Defendants’ infringement of the ‘707 patent, Plaintiff Realtime is entitled to monetary damages in an amount adequate to compensate for Defendants’ infringement, but in no event less than a reasonable royalty for the use made of the invention by Defendants, together with interest and costs as fixed by the Court.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff Realtime respectfully requests that this Court enter:

a. A judgment in favor of Plaintiff that Defendants have infringed, either literally and/or under the doctrine of equivalents, the ‘204 patent, the ‘728 patent, the ‘867 patent, and the ‘707 patent;

- b. A permanent injunction prohibiting Defendants from further acts of infringement of the '204 patent, the '728 patent, the '867 patent, and the '707 patent;
- c. A judgment and order requiring Defendants to pay Plaintiff its damages, costs, expenses, and prejudgment and post-judgment interest for Defendants' infringement of the '204 patent, the '728 patent, the '867 patent, and the '707 patent, as provided under 35 U.S.C. § 284; and
- d. A judgment and order requiring Defendants to provide an accounting and to pay supplemental damages to Realtime, including without limitation, prejudgment and post-judgment interest;
- e. That the damages for Defendants' infringement be increased under 35 U.S.C. § 284 to three times the amount found or assessed;
- f. A judgment and order finding that this is an exceptional case within the meaning of 35 U.S.C. § 285 and awarding to Plaintiff its reasonable attorneys' fees against Defendants; and
- g. Any and all other relief as the Court may deem appropriate and just under the circumstances.

DEMAND FOR JURY TRIAL

Plaintiff, under Rule 38 of the Federal Rules of Civil Procedure, requests a trial by jury of any issues so triable by right.

Dated: February 14, 2017

Respectfully submitted,

/s/ Marc A. Fenster by permission Claire
Abernathy Henry

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